

# THE HISTORY AND PROGRESS OF THE ZOOLOGICAL SURVEY OF INDIA

## INTRODUCTION

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It has been suggested by Sir Reginald Spence, Honorary Secretary, Bombay Natural History Society, that an article on the purpose and progress of the Zoological Survey of India might be of interest to the members of the Bombay Natural History Society, and might lead to a closer co-operation of the Society and its members with the Zoological Survey of India and its various officers and that by such close co-operation the usefulness both of the Society and of the Survey might be increased. In the following paper, therefore, I and my officers in the Survey have attempted, somewhat briefly, to bring before the members of the Bombay Natural History Society what we are attempting to do for India and what the members of the Bombay Natural History Society can do for us.

*History of the Zoological Survey of India.*—In order to trace the origin and history of the Zoological Survey of India it is necessary to go back nearly a hundred years, when serious zoological investigations were first undertaken in this country. At that time the only Society of any importance in India was the Asiatic Society of Bengal. This Society had been founded by Sir William Jones in 1784, but for nearly fifty years the study of zoology was not encouraged. It was at the instance of Brian Hodgson that investigation into the fauna of this country was seriously commenced, the first area to be investigated, and by Brian Hodgson himself, being the neighbouring territory of Nepal. It was in 1841 that Edward Blyth was appointed Curator of the Asiatic Society's Museum and he immediately commenced to make collections and to describe the vertebrate fauna of the Indian Empire. From this time on, a number of enthusiastic zoologists, whose names are too many to mention here, continued to carry on this work and gradually the collections of the Asiatic Society of Bengal increased and there was added to our knowledge a large number of new species, the 'types' of which were deposited in the Asiatic Society's Museum. The increase of the Society's collections resulted, in a few years, in such a congestion of the available and limited space in the Society's building that in 1856 the Society submitted a memorial to the Government of India urging the Government to establish an Imperial Museum in Calcutta, and offering their very valuable collection as a nucleus. Six years later, in 1862, the Government of India agreed to the proposal and the erection of the Indian Museum was commenced, but it

was not till 1875 that the Museum building in Chowringhee was completed and the Asiatic Society's collections were transferred to their new home. At the commencement of the Indian Museum, the collections of the Zoological and Anthropological Section consisted almost entirely of the collections that had been made by the Asiatic Society of Bengal and which were handed over by the Society to the Museum to form a nucleus around and to which further additions could be made. At the same time in 1875 the Marine Survey of India was inaugurated and, again owing to the representations made by the Asiatic Society of Bengal, the post of Surgeon-Naturalist to the Marine Survey of India was created. The duties of the Marine Survey included the investigation of the marine and specially the deep-sea fauna of the Indian waters; and it was laid down that these collections were the property of the Asiatic Society of Bengal until they had been worked out and named, and when this had been done, they were to be handed over to the Indian Museum. Between 1875 and 1916 the Zoological and Anthropological Section of the Indian Museum steadily expanded and by the care and activity of successive Superintendents and Assistant Superintendents, notably Dr. J. Anderson, Mr. J. Wood-Mason, Lt.-Col. A. W. Alcock and finally Dr. N. Annandale and his colleagues, a magnificent collection of animals in many of the larger groups was got together and a number of descriptive catalogues were prepared and published. During the same period a number of very important collections made by enthusiastic and distinguished amateurs, notably those by Dr. Francis Day of Indian Fishes, Mr. L. de Niceville of Butterflies, Dudgeon and Green of Moths, van de Poll of Passalid Beetles, and Godwin-Austin of Molluscs, were offered for sale and were purchased by the Trustees with funds supplied for the purpose by the Government of India. The number of officers attached to the Zoological and Anthropological Section of the Museum rose during these years from one to four and in 1916 as a result of representations made to the Government of India by the Trustees of the Indian Museum and by Dr. N. Annandale, Superintendent of the Museum and Officer-in-charge of the Zoological and Anthropological Section, this Section of the Museum was converted into the Zoological Survey of India and was placed on an equality with the Geological and Botanical Surveys. At this period the British Empire was in the throes of the great war and the services of the baby Survey were immediately offered to the Government of India. One of the novel features of the war was the realization by the military and especially by the medical authorities of the importance of the study of zoology and the employment of professional zoologists as a means towards the prevention of disease by sanitation or towards its limitation by recognized methods of quarantine, etc.; and, as a result of this recognition, a number of zoological specialists were employed in connection with the forces. But it was not until 1918, and only then largely as a result of representations made by the then Director-General of the Indian Medical Service, Surgeon-General Edwards, I.M.S., that the Government availed themselves of the services of the Zoological Survey of India in

order to carry out investigations regarding the possibility of the introduction of diseases hitherto unknown in this country, and more particularly of Schistosomiasis, by the troops returning from infected areas overseas. Another result of the war was an influx into the Museum of a number of collections made by officers who were interested in Zoology, either as amateurs or as professionals, in regions overseas to which these officers had proceeded on active service. Special attention was drawn to these valuable donations in the first report on the Zoological Survey of India for the year 1916-17, in which it was pointed out that a noteworthy feature of the donations received during this year was the large area from which they had come, 'from Egypt to Japan and from Siam to Arabia.' Commencing with this first request by the Government for the assistance of the Zoological Survey of India, co-operation between the Survey and the various Governments, either Imperial or Provincial, or with other official and non-official bodies has steadily increased and I may perhaps be allowed to refer here to the assistance that was rendered to the Bombay Natural History Society by the Zoological Survey of India during the course of the Mammal Survey that was conducted by the Society. In more recent years the Zoological Survey of India has been and is being more and more frequently consulted and asked for advice regarding such widely divergent subjects as (1) the organization of sea-fisheries by the Government of Madras, (2) brackish-water fisheries by the Government of Bihar and Orissa, (3) fresh-water fisheries by the Governments of the United Provinces and Burma, (4) the protection of lizards by the Government of Bengal, (5) the oyster fisheries in the Sunderbans by the Government of Bengal, and (6) the distribution of certain mammals, particularly those useful in medical research work, by the Calcutta School of Tropical Medicine. When asked to give advice on problems so divergent as these, it is particularly impressed on the officers of the Zoological Survey of India that, however expert we may be in certain groups of the Animal Kingdom and however extended our knowledge in the taxonomy of these groups, our knowledge of the habits of the vast majority of the animals inhabiting this country is still hopelessly incomplete and it is particularly along this line of research that enthusiastic amateurs such as the members of the Bombay Natural History Society, and particularly those members whose profession and occupation entail residence in the mofussil or in the wilds and jungles of India, can be of inestimable value.

At its inception the Zoological Survey of India consisted of only four officers, and Dr. Annandale in his first report on the Survey in 1917 wrote 'to any school-boy it must be clear that four men cannot conduct a real survey of the Indian Empire'. Since its inauguration the Survey has steadily increased in the number of its gazetted officers and at the present time 'we are seven', though even now we are still two short of our cadre as sanctioned by the Secretary of State; but it is hoped that in the near future these two vacancies will be filled and the strength of the Survey even further increased. Until this is done the actual regional survey-work of the department must be confined to comparatively small

areas. The first actual surveys undertaken by the department consisted in a study of small areas such as the Inlé Lake, Chilka Lake, the mouth of the Mutlah River, the Siju Cave, etc. During the latter part of the war and as a part of our investigations regarding the possible introduction of Schistosomiasis into India, we were able to carry out investigations into the fauna of Seistan. In 1926, at the request of the Pasteur Institute, Rangoon, and again in connection with the possible introduction of Schistosomiasis into Burma, we carried out a survey, especially of the Mollusc fauna, of the Northern Shan States. But in these instances it must be borne in mind that, however intensive a study may be made of an area during a period of a few weeks or a month or two, our knowledge of the fauna of that area must still remain hopelessly incomplete and it is only by repeated investigations at different periods of the year that we can hope to obtain anything like a complete knowledge. With the increase in the strength of the department we have in recent years become rather more ambitious and at the present time we are attempting a survey of the Nerbudda River. During the last three years parties have been despatched and collections have been carefully made, commencing in the region of the headwaters of the river system at Amar-kantak and its vicinity in the Rewa State, and gradually progressing further and further down the various tributaries until at the present time we have reached the neighbourhood of Itarsi. No one, however, realizes more clearly than we do that the collections made by successive parties can only give a partial picture of the fauna, since this of necessity must change very considerably from season to season and possibly from year to year in accordance with the various changes in climatic conditions during each season of the year and with the intensity in successive years of the monsoon rainfall, and it would be of the very greatest help to us if members of the Society who may happen either to live in this area, or may be visiting it, would make additional collections for us and send them to us with full details as to the locality in which they were made, the time of the year and the general conditions existing at the time.

The first essential of any survey, such as we are attempting to carry out, is the correct identification of the various animals that may be collected, and of necessity every officer in the Zoological Survey of India has first and foremost to become a taxonomist. With only six Zoologists on the staff, the seventh being an Anthropologist, it is impossible for us to cover the whole of the Animal Kingdom, but for many years past the officers of the Zoological and Anthropological Section of the Indian Museum or of the Zoological Survey of India have each of them taken up the study of one or two larger groups and in these groups we can claim to be experts. This specialisation has enabled us in the past to carry out taxonomic surveys of a number of different groups, the results of which have been published either as separate 'catalogues' or as 'memoirs', a complete list of which is issued by the Government Central Publication Branch, 8 Hastings Street, Calcutta, and is far too long to be included here, but among others

one may mention those of the Crustacea by Alcock, the fresh-water Sponges and Polyzoa by Annandale, the Stomatopoda by Kemp, the Passalid Beetles by Gravely and the Nemocera by Brunetti, and a special volume of the 'Records' on Biting Flies. We have been in the past, and hope to be equally in the future, fortunate enough to enlist the assistance of a number of specialists in other countries and in this way we have built up in the Museum a magnificent collection of authentically-named specimens, among which are a very large number of 'types'. In order to be certain of the correct identification of a specimen it has frequently been necessary to compare it with those obtained in other parts of the world and consequently collections from overseas are often of the very greatest importance and assistance to us. While, therefore, any member of the Society can be of the greatest help to us by making collections, no matter how small, in regions outside India and sending them to us for examination, we on the other hand can be of assistance to others by naming for them the collections that they have made; and we are only too willing to undertake, so far as we possibly can with our limited staff and limited available time, to work out such collections and, if desired, return them to the sender, the only stipulation that we make in such cases being that we are allowed to retain duplicates for our own collection and, where the collections contain new species, to publish the description and retain the 'type' specimens. If, on the other hand, the owner is willing to part with his collection for a financial consideration, we are always willing to offer a fair price asked for the complete collection, if small, or for individual specimens. In the case of large collections, our finances will not permit of such purchase out of our annual budget, but in the case of really valuable collections the Government of India have been in the past and doubtless in the future will be prepared to consider the question of the purchase of such for the Zoological Survey of India.

#### THE PUBLIC GALLERIES

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In the introductory chapter Col. Sewell has given a short summary of the history of the origin and development of the Zoological Survey of India, but since the Zoological Survey owes its development as a research institution to the establishment of the museum, and as one of the paramount duties of the Survey is the proper maintenance and development of the Zoological and Ethnological public galleries of the Imperial Museum, it will be useful to recapitulate here briefly the history of the development of these galleries.

In the original scheme for the foundation of the Asiatic Society of Bengal there was no mention of the establishment of a museum, but non-resident, mofussil members sent in curiosities of various kinds to the Society from time to time, and with the increase in their numbers, the Society seriously considered the question of having a suitable house for their preservation and exhibition in

1796. No practical results, however, ensued from these deliberations till the building of the Society was completed in 1808. In 1814 the first advance in this direction was made as a result of a letter from Dr. N. Wallich. Dr. Wallich, who was a Danish Botanist of great repute and was working in the Calcutta Botanical Gardens, had extensive private collections of Natural History objects etc., and he not only proposed to present to the Society duplicates from his collections but also offered his services free for looking after the Society's museum. The proposal was carefully considered and it was decided to establish in the Society's building a museum containing exhibits of all kinds from all over the East, and Dr. Wallich was appointed the first honorary Curator. During Dr. Wallich's period of Curatorship, owing to his being a Naturalist, very great attention was paid to the development of the Natural History Section of the Museum, and this continued to be the case under his successors, Pearson and McClelland, both of whom were medical men and were specially interested in the Natural History of India. Later, paid Curators were employed, but owing to the meagre salary of the post no really qualified man could be obtained till 1841. With increased grants from the Court of Directors of the East India Company in 1841 Dr. Edward Blyth was selected from London and sent to Calcutta to take charge of the office of the Curator of the Society's museum. Dr. Blyth was an exceptionally well qualified and a very enthusiastic Zoologist, and as a result of his devoted labours and the interest he was able to arouse in Natural History in the members of the Asiatic Society, the collections in this section of the museum soon outgrew the resources of the Society. Without going into details about the protracted negotiations that went on between the Board of Directors of the East India Company and later the Secretary of State for India and the Council of the Society in reference to the establishment of an Imperial Museum in Calcutta, it is enough to note that the Indian Museum was definitely established as an imperial institution and all the collections from the Asiatic Society's building were transferred to the new building of the Indian Museum in Chowringhee in 1875. In this connection it is of special interest to record that at this time the Natural History Section was considered the most important section of the Museum and had under its charge not only the show galleries containing Natural History exhibits but archaeological and other miscellaneous exhibits as well. Dr. John Anderson, a professor of Natural History from Edinburgh, was now appointed the first Curator of the Museum and later the designation of his post was changed to that of Superintendent of the Museum. It will thus be seen that in the earlier years the development of the Museum was intimately bound up with that of the Natural History Section of the Museum. The various Superintendents paid special attention to collections of Natural History specimens, and these were arranged and displayed in large public galleries according to the ideas then in vogue, but as was very well expressed by the late Dr. Annandale 'the question of the utilization of the Museum collections for the purpose of display and popular education in the Indian Museum was not unfortunately

developed to the same extent as the scientific utilization of these collections. Superintendents of the Indian Museum were 'faced throughout its history as a Government institution by the fact that the funds at their disposal have not been adequate both to encourage zoological research and to display to the public its results in a manner worthy of an Imperial Museum. They have deliberately chosen the alternative that seemed to them, in the peculiar circumstances prevalent in India, the better of the two, and have frankly claimed that the chief function of the zoological section must be to act as a centre of investigation. The peculiar difficulties that exist in India in respect to the public galleries of a zoological museum are both physical and educational. On the one hand we have the tropical light, and a comparatively great range of temperature; on the other, both the illiterate condition of the vast majority of the visitors and the eagerness with which students learn the statements on labels by rote. The last is a difficulty that is apparently by no means easy for a museum curator in Europe to appreciate, but is a very real one in Bengal, if not also in other countries.

At the present day there are under the Zoological Survey six zoological galleries of the Museum, two for Mammals, one for Birds, Reptiles and Batrachia, one for Fish, one for Invertebrates, one for Insects and Arachnids and one Ethnological gallery. The collections in these galleries are representative of the various classes of animals found in Asia and more particularly in India, but in order to make the survey of the Animal Kingdom complete several foreign animals are also exhibited. The public galleries, as noted above, are unfortunately not in a condition of which an Imperial Museum can be proud, but attempts are being made to remodel the galleries and replace the antiquated specimens by more up-to-date exhibits. For lack of funds the Victorian idea of exhibiting specimens in a museum gallery, which was adopted when the galleries were originally designed and arranged, has not, except in a few cases, been materially changed. The new Invertebrate gallery, however, and to a certain extent the Insect gallery, are models of what a public gallery in a museum should be, but even in these galleries nature-study groups of different classes of animals in their natural surroundings are a great desideratum. It is hoped that the deficiencies will be filled up as funds and the necessary technical help become available.

#### THE LIBRARY

BY B. PRASHAD, D.S.C., F.R.S.E., F.A.S.B., F.L.S., F.Z.S.

An up-to-date reference library is a very necessary adjunct to any zoological department, for, as is well known, systematic zoology is absolutely impossible without books. In Calcutta we are fortunate in having a zoological library which is probably as complete as that in any English or foreign University or Museum. The collection of books in this library, which was transferred to the Zoological Survey of India from the Natural History Section

of the Indian Museum in 1916, had been got together by the unceasing efforts of the officers of the department for over fifty years, and consisted of roughly 12,000 volumes. Since that date, in normal cases, roughly 600 volumes have been added every year, while on two occasions, as a result of special grants for the purchase of books from the Government of India, a large number of older works and many of the more recent standard publications have been purchased. On a rough estimate the number of books in the library today is over 20,000 volumes.

In the earlier years owing to the lack of funds the Museum library was deficient in several of the older publications which had already become classics and were, therefore, rare and very costly, and in the complete series of several periodical publications. This was due, at least in part, to the policy followed on the institution of the Indian Museum, when for lack of sufficient funds it was decided not to re-duplicate those publications which were available in other libraries in Calcutta. Many of the costly earlier publications were, therefore, not purchased for the Museum library, and the available funds were utilised for purchasing such works as were not available in any other library in the town. It may also be mentioned that most of the rarer earlier publications mentioned above are available in Calcutta in the libraries of the Asiatic Society of Bengal or of the Geological Survey of India. From the beginning of the twentieth century however and more particularly with the appointment of the late Dr. N. Annandale as the Superintendent of the Museum in 1907 the necessity of having more complete collections in the departmental library was brought home to the Trustees of the Indian Museum and through this body to the Education Department of the Government of India. The grants for the library were thereafter materially increased and the Museum library as a result has grown at a rapid rate. Further with the starting of the two special serial publications of the Natural History Section of the Indian Museum,—*viz.* the *Records* and the *Memoirs of the Indian Museum*, which with the institution of the Zoological Survey of India became the publications of the Survey Department—it was possible to greatly extend the exchange of publications with institutions and other bodies which publish zoological periodicals. As a result, the library of the Zoological Survey of India to-day receives every year about 200 serial publications, and of these only a small number are obtained by purchase. Within recent years as a result of the special grants mentioned above, it has also been possible to fill up many *lacunæ* in the serial works and purchase several standard works of reference, which were wanting in the departmental library, and of which unfortunately no copies are available in any other library in Calcutta.

In the earlier years and even up to the foundation of the Zoological Survey of India, the library of the Natural History Section of the Indian Museum in accordance with the statutory limitations was not a lending library and none of the library books could be removed out of the Museum building. With the foundation of the Zoological Survey of India, however, the Government of India suggested the desirability of throwing open this valuable library



to approved workers all over the country. Since this change of policy a very important activity of the library is the lending of books to workers all over the country and thereby enabling them to carry out research which, except in special centres, was hitherto impossible. Even though the number of workers in India is not very large at the present day still a fair number of books are sent on loan all the year round from the departmental library to workers in all parts of India. In addition requests are often received for the loan of books from Ceylon and other countries in Asia. Naturally these requests cannot be complied with, but as far as possible typed copies of the necessary references with photographs of plates are supplied.

The library of the Zoological Survey of India is particularly rich in certain sections especially Crustacea, Fishes, Molluscs, several groups of Invertebrates, various classes of Insects, etc., in which groups workers have carried out researches in the Museum and in the Zoological Survey. In these cases all the necessary literature has been accumulated and kept up-to-date, while in other groups like Mammals and Birds, there are unfortunate gaps and the library in these sections is not so well supplied as it should be. Attempts are, however, made from time to time and as funds become available to procure the missing publications and other works of general importance.

The library also contains a very rich collection of the reports of the different scientific expeditions all over the world and has a good collection of anthropological literature.

Unfortunately there is no up-to-date printed catalogue of the books in the library, but a list of the serials available will be found in Dr. S. W. Kemp's 'Catalogue of the Scientific Periodicals in Calcutta Libraries' published by the Asiatic Society of Bengal. The library is open to students and those interested in Zoology during office hours.

*(To be continued)*